

APPENDIX I

**An Act To Amend the Ontario Water Resources
Commission Act**

HER MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:

1. Clause *p* of section 1 of *The Ontario Water Resources Commission Act* is amended by adding at the end thereof "and such other matter or substance as is specified by regulations made under clause *ga* of subsection 1 of section 47", so that the clause shall read as follows:

- (*p*) "sewage" includes drainage, storm water, commercial wastes and industrial wastes and such other matter or substance as is specified by regulations made under clause *ga* of subsection 1 of section 47.

2.—(1) Subsection 1 of section 3 of *The Ontario Water Resources Commission Act* is amended by striking out "three" in the fifth line and inserting in lieu thereof "five" and by striking out "seven" in the fifth line and inserting in lieu thereof "eleven", so that the subsection shall read as follows:

- (1) The Ontario Water Resources Commission constituted a corporation without share capital on behalf of Her Majesty in right of Ontario by *The Ontario Water Resources Commission Act, 1956* is continued and shall be composed of not fewer than five and not more than eleven persons as the Lieutenant Governor in Council from time to time determines.

(2) Subsections 2 and 3 of the said section 3 are repealed and the following substituted therefor:

- (2) The Lieutenant Governor in Council shall appoint the members of the Commission and shall designate

nate one member as chairman and one or more members as vice-chairmen.

- (3) In the case of the absence or illness of the chairman or of there being a vacancy in the office of chairman, a vice-chairman designated by the chairman or, failing such designation, a vice-chairman designated by the Commission shall act as and have all the powers of the chairman and, in the event of the absence of the chairman and vice-chairman from any meeting of the Commission, the members present shall appoint an acting chairman, who, for the purposes of the meeting shall act as and have all the powers of the chairman.

3. Section 4 of *The Ontario Water Resources Commission Act* is amended by inserting after "minute" in the first line "of the Commission or of any direction, order, report, approval, notice, permit or licence made or issued by the Commission", so that the section shall read as follows:

4. A copy of any by-law, resolution or minute of the Commission or of any direction, order, report, approval, notice, permit or licence made or issued by the Commission certified by the secretary or assistant secretary under the seal of the Commission to be a true copy shall be received as *prima facie* evidence in any court without further proof.

4.—(1) Subsection 1 of section 8 of *The Ontario Water Resources Commission Act*, as re-enacted by section 1 of *The Ontario Water Resources Commission Amendment Act, 1965*, is repealed and the following substituted therefor:

- (1) Except as provided in subsection 2, three members of the Commission constitute a quorum.
- (2) Clauses *a, b, c, d, e* and *f* of subsection 2 of the said section 8 are repealed.

5. *The Ontario Water Resources Commission Act* is amended by adding thereto the following section:

8a. The Commission may by resolution authorize on such terms and conditions as it considers proper, any officer or officers of the Commission to exercise any of the powers conferred upon the Commission under,

- (a) subsections 2, 2a, 4 and 5 of section 28a;
- (b) subsections 1 and 3 of section 28b;
- (c) subsections 1 and 2 of section 28c;
- (d) subsections 1, 2 and 4 of section 29;
- (e) subsections 1 and 3 of section 30;
- (f) subsections 1 and 3 of section 31;
- (g) subsections 1, 4 and 10 of section 32 and subsections 1 and 3 of section 32a respecting the holding of a hearing and the giving of notice thereof; or
- (h) subsections 1 and 1a of section 43.

6. Subsection 2 of section 10 of *The Ontario Water Resources Commission Act*, as re-enacted by section 1 of *The Ontario Water Resources Commission Amendment Act, 1962-63*, is amended by inserting after "permanent" in the second line "an full-time probationary", so that the subsection shall read as follows:

- (2) *The Public Service Superannuation Act* applies to the permanent and full-time probationary staff of the Commission, except members of the staff who are members of the Ontario Municipal Employees Retirement System, as though the Commission had been designated by the Lieutenant Governor in Council under section 27 of that Act.

7. Section 18 of *The Ontario Water Resources Commission Act*, as amended by section 2 of *The Ontario Water Resources Commission Amendment Act, 1964* and section 1 of *The Ontario Water Resources Commission Amendment Act, 1966*, is further amended by adding thereto the following subsection:

- (4) Every person who hinders or obstructs any employee or agent of the Commission in the exercise of his powers or the performance of his duties under subsection 1 is guilty of an offence and on summary conviction is liable to a fine of not more than \$200 for every day upon which the offence is committed or continues.

8. *The Ontario Water Resources Commission Act* is amended by adding thereto the following section:

- 25a. Under sections 26, 27, 27b and 28 the quality of water shall be deemed to be impaired if, notwithstanding that the quality of the water is not or may not become impaired, the material deposited or discharged or caused or permitted to be deposited or discharged or any derivative of such material causes or may cause injury to any person, animal, bird or other living thing as a result of the use or consumption of any plant, fish or other living matter or thing in the water or in the soil in contact with the water.

9. Subsection 1 of section 26 of *The Ontario Water Resources Commission Act* is repealed and the following substituted therefor:

- (1) For the purposes of this Act, the Commission has the supervision of all surface waters and ground waters in Ontario.

10.—(1) Subsection 1 of section 27 of *The Ontario Water Resources Commission Act*, as re-enacted by section 5 of *The Ontario Water Resources Commission Amendment Act, 1961-62*, is amended by striking out "to a fine of not more than \$1,000 or to imprisonment for a term of not more than one year, or to both" in the tenth, eleventh and twelfth lines and inserting in lieu thereof "on first conviction to a fine of not more than \$5,000 and on each subsequent conviction to a fine of not more than \$10,000 or to imprisonment for a term of not more than one year, or to both such fine and imprisonment", so that the subsection shall read as follows:

(1) Every municipality or person that discharges or deposits or causes or permits the discharge or deposit of any material of any kind into or in any well, lake, river, pond, spring, stream, reservoir or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of any well, lake, river, pond, spring, stream, reservoir or other water or watercourse is guilty of an offence and on summary conviction is liable on first conviction to a fine of not more than \$5,000 and on each subsequent conviction to a fine of not more than \$10,000 or to imprisonment for a term of not more than one year, or to both such fine and imprisonment.

(2) The said section 27 is amended by adding thereto the following subsections:

(1a) Each day that a municipality or person contravenes subsection 1 constitutes a separate offence.

(1b) Every municipality or person that discharges or deposits or causes or permits the discharge or deposit of any material of any kind, and such discharge or deposit is not in the normal course of

events, or from whose control material of any kind escapes into or in any well, lake, river, pond, spring, stream, reservoir or other water or watercourse or on any shore or bank thereof or into or in any place that may impair the quality of the water of any well, lake, river, pond, spring, stream, reservoir or other water or watercourse, shall forthwith notify the Commission of the discharge, deposit or escape, as the case may be.

- (1c) Every municipality or person that fails to notify the Commission as provided in subsection 1b is guilty of an offence and on summary conviction is liable to a fine of not more than \$5,000.

11. *The Ontario Water Resources Commission Act* is amended by adding thereto the following sections:

27a. —(1) With the approval of the Minister, the Commission may by order prohibit or regulate the discharge or deposit by any municipality or person of any sewage into or in any well, lake, river, pond, spring, stream, reservoir or other water or watercourse, and any such order may, with the approval of the Minister, be amended, varied or revoked by the Commission as it considers desirable.

- (2) Every municipality or person that contravenes an order made under subsection 1 is guilty of an offence and on summary conviction is liable on first conviction to a fine of not more than \$5,000 and on each subsequent conviction to a fine of not more than \$10,000.
- (3) Each day that a municipality or person contravenes an order made under subsection 1 constitutes a separate offence.

27b. —(1) Where, in the opinion of the Commission it is in the public interest to do so, the Commis-

sion may by order require any municipality or industrial or commercial enterprise to have on hand and available at all times such equipment, chemicals and other materials as the order specifies to alleviate the effects of any impairment of the quality of water that may be caused by the municipality or industrial or commercial enterprise.

- (2) Every municipality or industrial or commercial enterprise that contravenes an order of the Commission made under subsection 1 is guilty of an offence and on summary conviction is liable to a fine of not more than \$500 for every day the contravention continues.

27c. Before making an order under section 27a, 27b, subsection 2a of section 28a or section 50, the Commission shall afford a reasonable opportunity to be heard to the municipality or person to whom the order is proposed to be directed.

12. Subsection 2 of section 30 of *The Ontario Water Resources Commission Act* is amended by inserting after "person" in the fifth line and in the eleventh line "or his successor or assignee", so that the subsection shall read as follows:

- (2) Where any person undertakes or proceeds with the establishment of any water works, or the extension of or change in any existing water works, without having first obtained the approval of the Commission, the Commission may order the person or his successor or assignee to afford at his own expense such facilities as the Commission may deem necessary for the investigation of the works and the source of water supply and may direct such changes to be made in the source of water supply and in the works as the Commission may deem necessary, and any changes directed

by the Commission to be made in the works shall be carried out by the person or his successor or assignee at his own expense.

13. Subsection 2 of section 31 of *The Ontario Water Resources Commission Act* is amended by inserting after "person" in the fifth line and in the twelfth line "or his successor or assignee", so that the subsection shall read as follows:

- (2) Where any person undertakes or proceeds with the establishment of any sewage works, or the extension of or any change in any existing sewage works, without having first obtained the approval of the Commission, the Commission may order the person or his successor or assignee to afford at his own expense such facilities as the Commission may deem necessary for the investigation of the works and the location of the discharge of effluent and may direct such changes to be made in the location of the discharge of effluent and in the works as the Commission may deem necessary, and any changes directed by the Commission to be made in the works shall be carried out by the person or his successor or assignee at his own expense.

14.—(1) Subsection 1 of section 32 of *The Ontario Water Resources Commission Act*, as re-enacted by section 5 of *The Ontario Water Resources Commission Amendment Act, 1966*, is amended by striking out "each other municipality concerned" in the seventh line and inserting in lieu thereof "the municipality in or into which the sewage works are being established or extended and to the clerks of such other municipalities", so that the subsection shall read as follows:

- (1) Where any municipality contemplates establishing or extending its sewage works in or into another

municipality or territory without municipal organization, the Commission shall, before giving its approval under section 31, hold a public hearing and give at least ten days notice of the hearing to the clerk of the municipality in or into which the sewage works are being established or extended and to the clerks of such other municipalities and to such other persons and in such manner as the Commission may direct.

(2) Subsection 5 of the said section 32 is amended by striking out "each other municipality concerned" in the thirty-first and thirty-second lines and inserting in lieu thereof "the municipality in or into which the sewage works are being established or extended and to the clerks of such other municipalities", so that the last four lines of the subsection shall read as follows:

and notice of the application shall be given to the clerk of the municipality in or into which the sewage works are being established or extended and to the clerks of such other municipalities and to such other persons and in such manner as the Board may direct.

(3) The said section 32 is amended by adding thereto the following subsections:

(11) Where the Commission has given its approval under section 31 to an extension by a person of his sewage works from one municipality into another municipality or into territory without municipal organization the Board may, on application made by the person undertaking the extension, order the amendment of any by-law passed under paragraph 112 of subsection 1 of section 379 of *The Municipal Act* or any by-law passed under section 30 of *The Planning Act* or any official plan to permit the use of the land for the extension.

- (12) The Board, as a condition of making an order under subsection 11, may impose such restrictions, limitations and conditions respecting the use of land for the extension of the sewage works, not inconsistent with the terms and conditions of the approval of the Commission given under section 31, as to the Board may appear necessary or expedient.

15. Section 32a of *The Ontario Water Resources Commission Act*, as enacted by section 6 of *The Ontario Water Resources Commission Amendment Act, 1966*, is amended by adding thereto the following subsections:

- (4) Where the Commission has given its approval under section 31 to an establishment or extension by a person of sewage treatment works within a municipality the Board may, on application by the person undertaking the establishment or extension, order the amendment of any by-law passed under paragraph 112 of subsection 1 of section 379 of *The Municipal Act* or any by-law passed under section 30 of *The Planning Act* or any official plan to permit the use of land for the establishment or extension.
- (5) The Board, as a condition of making an order under subsection 4, may impose such restrictions, limitations and conditions respecting the use of land for the establishment or extension of the sewage treatment works not inconsistent with the terms and conditions of the approval of the Commission given under section 31, as to the Board may appear necessary or expedient.

16. *The Ontario Water Resources Commission Act* is amended by adding thereto the following section:

- 32b. Subsections 11 and 12 of section 32 and subsections 4 and 5 of section 32a apply *mutatis mutandis* to a

11a

municipality that has obtained the approval of the Commission to the establishment or extension of its sewage works or to the establishment or extension of sewage treatment works.

17. Paragraph 2 of subsection 1 of section 40 of *The Ontario Water Resources Commission Act* is amended by striking out "the rate of $3\frac{1}{4}$ per cent per annum" in the sixth and seventh lines and inserting in lieu thereof "such rate as is prescribed by regulation by the Commission", so that the paragraph shall read as follows:

2. In each calendar year for such period of years as may be prescribed by such agreement, commencing not later than the fifth calendar year next following the date of completion of such project, such sum as would be necessary with interest compounded annually thereon at such rate as is prescribed by regulation by the Commission to form at the expiry of such period of years a fund equal to the cost of such project.

18. *The Ontario Water Resources Commission Act* is amended by adding thereto the following section:

- 41a. Where an agreement is made with a municipality for the provision of sewers under clause *d* of subsection 1 of section 16 or under section 39, the municipality may charge the owner of the premises for which a service drain is constructed the cost of construction of the service drain from the sewer to the line of the highway, together with interest thereon at a rate to be determined by the municipality, over such period of years as the municipality determines.

19. Subsection 5 of section 42 of *The Ontario Water Resources Commission Act* is repealed.

20. Section 43 of *The Ontario Water Resources Commission Act*, as amended by section 12 of *The Ontario Water*

Resources Commission Amendment Act, 1961-62 and section 6 of *The Ontario Water Resources Commission Amendment Act, 1965*, is further amended by adding thereto the following subsection:

- (1a) Notwithstanding subsection 1, where a reserve account has been established in respect of a project, the Commission may, in respect of any other project for the same municipality, expend, use, apply, utilize and appropriate therefrom such amounts as in the opinion of the Commission may be sufficient therefor for any of the purposes mentioned in clauses *a*, *b* and *c* of subsection 1.

21.—(1) Subsection 1 of section 47 of *The Ontario Water Resources Commission Act*, as amended by section 14 of *The Ontario Water Resources Commission Amendment Act, 1961-62*, subsection 1 of section 7 of *The Ontario Water Resources Commission Amendment Act, 1962-63*, subsection 1 of section 10 of *The Ontario Water Resources Commission Amendment Act, 1964* and section 11 of *The Ontario Water Resources Commission Amendment Act, 1966*, is further amended by adding thereto the following clauses:

- (da) prescribing the rate of interest for the purpose of paragraph 2 of subsection 1 of section 40;

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- (fa) classifying persons who operate sewage works and requiring and providing for the licensing of sewage work operators or any class or classes thereof, and prescribing the qualifications of persons to whom licences may be issued, and prescribing and charging fees for such licences, and providing for the revocation and suspension of licences;

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- (ga) specifying any matter or substance as sewage for the purposes of any section or sections of this Act or of any regulation made thereunder.

(2) Subsection 3 of the said section 47 is repealed and the following substituted therefor:

- (3) Every municipality or person who contravenes any regulation made under this section is guilty of an offence and on summary conviction is liable to a fine of not less than \$25 and not more than \$1,000.

22. Subsection 2 of section 47b of *The Ontario Water Resources Commission Act*, as enacted by section 15 of *The Ontario Water Resources Commission Amendment Act, 1961-62*, is amended by inserting at the commencement thereof "Subject to section 52", so that the subsection shall read as follows:

(2) Subject to section 52, Part XXI of *The Municipal Act* applies *mutatis mutandis* to by-laws passed under this section.

23. Section 51 of *The Ontario Water Resources Commission Act*, as enacted by section 7 of *The Ontario Water Resources Commission Amendment Act, 1960-61*, is amended by adding thereto the following subsection:

- (2) Subsection 1 does not apply in respect of any of such sewage works constructed under an agreement entered into after the 1st day of September, 1964.

24. Section 52 of *The Ontario Water Resources Commission Act*, as enacted by section 11 of *The Ontario Water Resources Commission Amendment Act, 1964*, is amended by inserting after "Act" in the second line "or of any by-law passed under clause c or d of subsection 1 of section 47b", so that the section shall read as follows:

52. Proceedings to enforce any provision of this Act or of any regulation made under this Act or of any by-law passed under clause c or d of subsection 1 of section 47b may be instituted within one year after the time when the subject-matter of the proceedings arose.

25. Section 53 of *The Ontario Water Resources Commission Act*, as enacted by section 11 of *The Ontario Water Resources Commission Amendment Act, 1964*, is amended by inserting after "Commission" in the first line "or an officer to whom power has been delegated by the Commission under section 8a" and by inserting after "Commission" in the second and third lines "or such officer", so that the section shall read as follows:

53. Where the Commission or an officer to whom power has been delegated by the Commission under section 8a has authority to direct or require that any matter or thing be done, the Commission or such officer may direct that, in default of its being done by the municipality or person directed or required to do it, such matter or thing shall be done at the expense of such municipality or person, and the Commission may recover the expense incurred in doing it, with costs, by action in a court of competent jurisdiction as a debt due to the Commission by such municipality or person.

26. *The Ontario Water Resources Commission Act* is amended by adding thereto the following section:

58. Any amount due and payable by a municipality or a person to the Commission under any agreement or otherwise, together with all interest and expenses of debt service, if any, payable by the Commission to the Treasurer of Ontario with respect to such amount may be recovered with costs in a court of competent jurisdiction as a debt due to the Commission by the municipality or person.

27. This Act comes into force on the day it receives Royal Assent.

28. This Act may be cited as *The Ontario Water Resources Commission Amendment Act, 1970*.

APPENDIX II

RESTRICTED

**Draft Effluent Regulations for the Chlor-Alkali Industry
Regarding Mercury Under the Fisheries Act
December 15, 1970**

Environmental Quality Directorate
Department of Fisheries and Forestry
Ottawa, Canada

**EFFLUENT REGULATIONS UNDER THE
FISHERIES ACT**

Regulations are being developed under the authority of Section 33, Subsection 12 of the Fisheries Act as amended on 26 June, 1970.

The Fisheries Act was amended to provide strengthened powers for the Minister to control water pollution as it affects the plant and animal life of waters.

Rationale

The philosophy reflected in these regulations is that the highest practicable degree of treatment should be required consistent with current technology. An overriding condition necessary to provide adequate protection to our aquatic environment will be the total restriction on certain substances.

Regarding an effluent regulation for the chlor-alkali industry the following is proposed, based on several considerations:

Because of gaps in scientific knowledge regarding such things as the sublethal effects of low levels of mercury on the environment and the extent of natural contamination both necessitating further research in these areas, it will only be possible to draft an *interim* regulation.

Further, because of the seriousness of mercury poisoning (Minimata and Swedish experiences), and the widespread observation on this continent of the dramatic biological magnification of mercury in aquatic life forms, our present judgment is that our goal should be the complete elimination of contributions of mercury to the environment by activities of man. This should be achieved in a staged program. The first stage, to be covered by our *interim* regulation should require the highest degree of abatement, in both air and water, practicable with current technology.

Swedish experts suggest that .01 pounds of mercury in liquid effluent per ton of chlorine produced is the best feasible with current technology. The successes of most chlor-alkali plants in Canada suggest that our technology has advanced beyond that of the Swedes. Canadian experience suggests effluent losses less than half those as cited by the Swedes, as being attainable.

Regulation

Our interim regulation will require that by April 1, 1971, all chlor-alkali plants in Canada reduce their liquid effluent losses of mercury to 0.01 pounds per ton of chlorine produced with a further reduction to, .005 pounds mercury per ton of chlorine by June 1, 1971. The regulation will come up again for review in January 1972, at which time the next stage in reduction toward the goal of zero should be stipulated.

APPENDIX III**ONTARIO LEGISLATURE****(October 8, 1970)****STATEMENTS BY THE MINISTRY.****The Hon. Minister of Lands and Forests.**

Hon. R. Brunelle (Minister of Lands and Forests): Mr. Speaker, I have a statement to make with reference to mercury levels in Ontario fish.

Health authorities have recommended since last May that fish with levels of mercury higher than 0.5 parts per million should not be eaten, especially on a regular basis. The Department of Lands and Forests, in co-operation with the Ontario Water Resources Commission and the federal Department of Fisheries and Forestry and their Fisheries Research Board, began collecting fish in Ontario and analysing them for mercury levels almost a year ago.

Today two federal fisheries laboratories in Winnipeg and one in Toronto as well as one provincial laboratory in OWRC, are analysing fish from Ontario supplied by The Department of Lands and Forests or by the federal Fish Inspection Service. Ontario's Departments of Lands and Forests and Agriculture and Food are in the process of establishing analytical facilities for further studies.

Fish of a variety of species from well over 105 distinct water areas amounting to thousands of samples have been analysed. As a result of the earliest testing which was directed toward areas which were suspected to be critical because of industrial activity, a number of waters were officially closed to commercial fishing by regulation, and anglers were issued warnings to "fish for fun." In some areas all commercial fishing was prohibited but in others the prohibition applied only to one or a few critical species.

I am tabling a list of waters, beginning in northwestern Ontario, moving eastward to the Ottawa River, including the Great Lakes, from which fish have been tested to date.

In some cases, samples were taken from commercial shipments of thousands of pounds of fish. In other waters, only individual fish may have been analysed.

This report records for the direction of the public, all areas and species analysed. "Above" means that levels of mercury are 0.5 parts per million or more, which is the recommended upper level for human consumption. "Below" means that the levels are below this limit and are considered acceptable.

Some of the levels discovered are in areas where there are no industrial activities, and further investigation of such waters is necessary to understand the source of these "background" levels. They may be as a result of mercury in the atmosphere or mercury in rock formations.

It is planned to revise this list at two-month intervals or depending on the significance of the change detected as a result of our continuing programme. Commercial fishermen are being warned to move out of areas where levels are above the 0.5 parts per million, or to change their gear to catch species which are not affected. Anglers, through this statement and by means of posted signs, are being warned to "fish for fun".

Further sampling will continue of species not listed; of different age classes of some species; and of waters not yet tested. We suspect that seasonal variations in levels may exist and plan to develop year-round monitoring of some species.

Those areas previously closed to commercial fishing for all fish are marked with an asterisk and those species closed in a few special areas are marked also.

I will have copies of this statement, Mr. Speaker, for all members of the Legislature.

Mr. Speaker: Oral questions.

MERCURY CONTAMINATION OF WATERS

Mr. Nixon: Sir, questions rising from the statement.

Will the minister make clear whether or not new lakes have had fishing banned in them as a result of this announcement?

Hon. Mr. Brunelle: This announcement, Mr. Speaker, is a warning. No new lakes have been closed. However, if, from additional information gained through sampling analysis, we find that it is necessary to close certain lakes, we will do so. At the moment we feel that we have no conclusive results and therefore we are issuing warnings only.

Mr. T. P. Reid (Rainy River): A supplementary, Mr. Speaker: Could the minister indicate—

Mr. Speaker: Order! I must say that we are not entering into the oral question period yet. This was a question of clarification of the minister's statement.

Mr. Nixon: Yes, but we are in the question period.

Mr. Speaker: And it was to be part of the oral question period? Very good.

Mr. T. P. Reid: Can the minister indicate who has the final authority to ban commercial fishing? Is it the provincial government or the federal government or the two governments acting in concert?

Hon. Mr. Brunelle: Mr. Speaker, we work very closely with the federal authorities. I have communicated with the minister. My officials have also communicated with his officials and I would say that the authority rests with ourselves, the Ontario government, to ban commercial fishing.

Mr. Nixon: Mr. Speaker, a further supplementary: The minister has announced previously that efforts will be made to remove the sources of pollution, particularly in the cases of mercury lying in some form or another at the bottom of certain waterways. There is nothing said about that either in this statement or in the minister's comments recently. Can he report on the efforts to remove the polluting mercury? I think he indicated that they were going

to try to dredge the bottom of some of these lakes and that this has been abandoned.

Hon. Mr. Brunelle: On this question, my colleague, the Minister of Energy and Resources Management (Mr. Kerr), is much more knowledgeable, but I would say that there are various types of mercury. There is organic and inorganic; there is metal. At one time—and this is still being considered—thought was given to removing mercury from, for instance, Lake St. Clair, where it is known to be in certain parts of the lake. There are some authorities, who are very knowledgeable and who have the results of what has happened in Sweden and other countries, who feel that this is not advisable. Trying to remove the mercury only aggravates the situation. That is why, at this time, we are considering and trying to base our plans according to experience available in other jurisdictions.

The Minister of Energy and Resources Management has just returned from Sweden and other countries where he consulted with those officials on this very matter.

Mr. Nixon: Are we to understand that no cleanup activities are presently underway?

Hon. Mr. Brunelle: Again, Mr. Speaker, this rests with the Ontario Water Resources Commission and I do not know what they have or have not undertaken. I know they have been in consultation with the industries concerned but I cannot say what they have or have not done.

Mr. Speaker: The hon. member for Thunder Bay.

Mr. J. E. Stokes (Thunder Bay): Thank you, Mr. Speaker. Can the minister assure commercial fishermen who have been adversely affected by the mercury contamination that they will be compensated for any losses by those responsible for the pollution, since the federal Department of Fisheries announced that there will be no assistance through that agency after September 25?

Hon. Mr. Brunelle: What we are doing, Mr. Speaker, is working very closely with the commercial fishermen. We will try and direct those fishermen to those areas where

there is no mercury contamination and to fish for certain species that are not affected. Now that we know from our studies that many, many lakes are suffering—I say suffering—that the fish are contaminated with mercury, not through industrial deposits but through natural backgrounds of the rock formations, or the soil, or the atmosphere.

This throws an entirely different light on the situation, and it may well be—and we do not know, for instance, we need more information—we do not know how long this will last or if this is going to last for a considerable length of time. It may be that in certain areas where it is a natural level of mercury we cannot do anything about this; it may be that we may have to have some retraining programmes. This would be, I would hope, a federal-provincial participation. So at this stage we are still in this exploratory stage, and we certainly do not want to see commercial fishermen deprived of their livelihood without compensation.

Mr. Speaker: The hon. member for Rainy River was going to ask for a supplementary?

The hon. member for Sandwich-Riverside on a supplementary.

Mr. F. A. Burr (Sandwich-Riverside): Yes. Mr. Speaker, a supplementary: The minister mentioned the industrial pollution and the non-industrial pollution or the background pollution. Could the minister tell us whether any of the levels exceed 0.5 parts per million where there is no industrial pollution?

Hon. Mr. Brunelle: Yes. On this list, Mr. Speaker, as I mentioned earlier and there will be a copy for every member—there are many, many lakes in northwestern Ontario, for instance, where there are no known sources of industrial pollution—it must be from background level—but which have rates that are much higher than 0.5 parts per million.

Mr. Speaker: Does the hon. member for Kenora have a supplementary?

Mr. L. Bernier (Kenora): Yes, Mr. Speaker, I have a supplementary to the minister's statement:

In view of the fact that Sweden is presently considering raising its standard from 0.5 parts per million to 1 part per million, and in view of the many lakes that are listed in the minister's statement today, are there discussions going on in this country, or with other authorities, on the possibility of raising that standard?

Hon. Mr. Brunelle: That is a very good question, Mr. Speaker. There are many who question whether 0.5 parts per million is a realistic figure. That is why our counterparts in the United States, in other jurisdictions, and in other provinces in Canada are continually looking further into this, because it could well be that that level may be changed.

From the information that I have been given, health authorities have been in northwestern Ontario and apparently at the moment it does not appear that persons who have been eating fish contaminated with mercury have suffered any ill-effects, though this is being looked into seriously.

APPENDIX IV

(The Washington Post Monday, Dec. 28, 1970)

Even Batteries, Fillings Add to Pollution

MERCURY: OMNIPRESENT POISON

By VICTOR COHN

Washington Post Staff Writer

The silvery poison called mercury has long been an accidental part of man's diet. But now, suddenly, it has become a prominent health concern.

Fish with more than .5 parts of mercury per million—the federal safety guideline—have been found this year in most states. Much fishing was banned and fish from suspect areas are now inspected before sale. The levels of mercury found in swordfish and canned tuna brought government action to get contaminated stocks removed from the market.

Where has the mercury come from? Industrial uses of mercury have increased 20-fold since 1945, and many people assume that the increased burden of mercury comes directly from industrial water pollution. But the findings of scientists indicate that the answer is not so simple:

- There is evidence from New York state, not yet officially released, that there was almost as much mercury in some U.S. fish and waters 40 years ago as there is today—though nothing like the peaks caused since by far greater pollution.

- By no means all of today's mercury pollution—probably no more than half—has come from industrial waste discharges into waters, the cause that has had almost all the blame so far.

- Huge amounts, probably tons, are being poured into the atmosphere from the smokestacks of every coal-burning furnace. Electric power generation for Detroit alone may be putting more mercury into the air than were two big

Michigan chemical firms tagged as polluters: Dow and Wyandotte. If all the mercury naturally contained in coal is vaporized on burning, U.S. power plants may be putting as much as 150 tons into the skies every year.

- Many so-called "minor" uses of mercury add up to a huge share of total use, and much of it ends up in the environment. Thus users may toss away transistor radio batteries and dozens of other modern products all unaware that they contain mercury; dental patients may spit out little bits of excess filling in which mercury has been used to dissolve and bind the other materials. (Dental assistants, by recent Canadian figures, have 12 to 45 parts per million in their hair—which concentrates mercury—compared to .2 to .6 parts per million for people in other occupations.)

- Roughly half of all the mercury now being found in food may come from natural sources, and only half from pollution by man.

POTENTIAL DANGER

All mercury is potentially dangerous, in sufficient amounts. These are amounts, it is hoped, several times greater than those now being allowed in swordfish, tuna and other foods.

Doctors know mercury compounds can kill brain and nerve cells, cause liver and kidney damage and—when a pregnant woman consumes it—concentrate in the sensitive fetus.

Still, there has been mercury on the earth for 4.5 billion years, since creation. It is particularly concentrated in certain kinds of rocks, in areas that were once volcanic and where there are deposits of cinnabar (mercury and sulphur ore).

These exist both on the continents and in the oceans. Mercury is also associated with other areas, for example, the manganese nodules on the ocean bottom.

INTAKE INCREASED

Some mercury is being leached or washed out of these sources all the time. Some naturally vaporizes and enters the air. It is highly probable that some is eventually turned into the chemical form—methylmercury—that is most harmful to human beings.

Only in 1934, a German chemist found that his average countryman's mercury intake was 35 micrograms a week—just a trace, mostly, it was assumed, from natural sources.

Today, estimates Dr. David H. Klein, chemistry professor at Hope College in Holland, Mich., an average American's mercury intake would be 300 micrograms a week if he eats no meat, 350 if he eats "a little meat" and 750 if he depends almost entirely on the contaminated fish—fresh or salt water—now banned from commerce.

Serious concern over mercury in the environment started in the '50s and '60s. The Swedes found it in wild fowl, the result of their eating farm seed treated (to kill fungus disease) with methylmercury.

The Japanese counted 50 deaths and nearly 200 more cases as the result of massive discharges by plastics plants of the dangerous methylmercury.

CONVERTED BY BACTERIA

But mercury-using industry generally was discharging not methylmercury but the metallic form, which everyone assumed just sank to stream bottoms. Then scientists learned that bacteria in water or fish could convert metallic mercury to methylmercury.

Earl J. Harris, associate analytical chemist in New York State's Rome Pollution Laboratory—part of its Department of Environmental Conservation—recently examined "in the neighborhood of a dozen" fish, mature walleyed pike and small mouth bass caught in various New York waters from

1927 onward, then preserved in alcohol as biological specimens.

All but two, he discovered, contained more than .5 parts of mercury per million, in amounts up to 1.5 parts. But none contained levels as high as 8 parts, the high so far in fish caught this year in badly affected Lake Onondaga, site of a chlor-alkali plant that was long a Class A mercury polluter.

Some of Harris' fish, reports Dr. Roger Herdman, a New York state toxicologist, came from remote areas in the Adirondacks with no agricultural or industrial mercury sources—and downwind of no major cities.

NATURAL SOURCES

"I can't think of any way that mercury got there except from natural sources," Herdman states. "But there is also absolutely no question but there have been additions to mercury levels from pollution."

Chemists in Michigan, where Lake Erie was badly affected, began analyzing coal samples. One from southeastern Ohio, they found, contained .4 to .5 parts per million of mercury.

Much other coal is rated far lower. But even .1 part per billion adds up—the Western world has burned coal since the Industrial Revolution, and the vapor is blown by winds all over the globe, then rained down on land and seas, to end up in water filtered by plankton which are eaten by fish which, after many such concentrations, are eaten by the largest fish at the top of the food chain—like swordfish and tuna.

In Crude Oil

Kevin Shea, scientific director of the Committee for Environmental Information in St. Louis, reports finding that some crude oil—also burned by electric power plants—con-

tains as much as 20 parts of mercury per million. But the amount in most oil may be far lower, in parts per billion.

"For the real information on where we're mainly using mercury," and how much we may be throwing away sooner or later, "just look at the annual Minerals Yearbook of the Bureau of Mines," says Dr. Frank D'Itri of Michigan State University's Institute of Water Research.

A look shows that the United States "consumed" 6,011,094 pounds of mercury in 1969. The chemical industry (including relatively minor chemical users like paper and pulp mills and drug-makers) used 1,914,060 pounds or 32 per cent.

The industry is probably still using as much, but with far stricter antipollution measures. The Interior Department in September said mercury discharged into waters had been reduced by 86 per cent.

The pharmaceutical industry uses mercury in diuretics (antiwaterlogging drugs) and as a bacteria-killer in salves and antispectics (like mercurochrome, named for its mercury).

"How much of this," asks D'Itri, "do you suppose we wash down the sink?"

A full 24 per cent of the entire mercury output is used to make electrical apparatus. It goes into mercury batteries, energy cells, scientific instruments, flashlight, toys, radios, mercury vapor lights for street lighting and fluorescent, germicidal and photocopying lamps.

"We're obviously throwing away a lot," D'Itri says, "and mercury for a metal is tremendously volatile."

In Control Instruments

Another 9 per cent is used in industrial and control instruments, a separate category. Dentistry uses 4 per cent, 9.7 per cent is used in making paint long-lasting and fungus-

resistant—until it eventually deteriorates to be washed away someplace.

“General laboratory use” accounts for 3 per cent. “A lot is used in hospitals,” D’Itri says. “Pathologists use it as a fixative for tissues. Then the tissues are incinerated—and the mercury goes into the air—or they’re ground up in the ‘Dispose-all,’ and they and any excess solution go down the drain.

“Many of these uses are very minor. But they add up.”

Agricultural uses—mainly seed-treating—took 3 per cent of 1969’s mercury output. Most uses of the most dangerous forms have now been halted, the Agriculture Department reports. It was treated seed, painted red as a warning, which a New Mexico family fed its pigs—to live on the pork until sickness began.

No medical symptoms attributable to mercury have yet been seen in any moderate eaters of tuna or swordfish or other fish-eaters.

“The fact that we can’t identify an actually sick person is a happy one,” says Herdman. “It would be insane to wait until someone is sick before we start to worry about this.”

And St. Louis’ Dr. Neville Grant, specialist in internal medicine, and a teacher at Washington University, worries about “what really cause some of our funny neurological diseases.”

“I think we have to look very closely at many more fetuses,” he says. “I think we have a great deal to learn yet about very low-level mercury poisoning.”

APPENDIX V

UNITED STATES DEPARTMENT OF THE INTERIOR
FEDERAL WATER POLLUTION CONTROL ADMINISTRATION
5555 Ridge Ave., Cincinnati, Ohio 45213

November 30, 1970

Mr. V. K. McEwan
Thomson, Rogers Barristers & Solicitors
200 Richmond-Adelaide Centre
120 Adelaide St., W.
Toronto 110, Ontario

Dear Mr. McEwan:

Enclosed is a list of companies known to discharge or to have discharged mercury to the water of Lake Erie or its tributaries. Also attached is a copy of the report on mercury that was prepared for and presented at the June 3, 1970, conference on Lake Erie at Detroit, Michigan.

Sincerely yours,

/s/ LOWELL A. VAN DEN BERG
L. A. Van Den Berg
Assistant to Director
Division of Field
Investigations, Cinti.
Office of Enforcement &
Standards Compliance
FWQA

Enclosures

List of mercury discharges

Report—"Investigation of Mercury
in the St. Clair River-Lake Erie Systems"

LIST OF COMPANIES KNOWN TO DISCHARGE OR
TO HAVE DISCHARGED MERCURY TO
LAKE ERIE OR ITS TRIBUTARIES

Wyandotte Chemical Co.
Wyandotte, Mich.

Detrex Chemical Industries
Ashtabula, Ohio

General Electric Chemical Products Plant
Cleveland, Ohio

Harshaw Chemical Co.
Div. of Kewanee Oil Co.
Elyria, Ohio

Mallinckrodt Chemical Works
Calsical Division
Erie, Penna.

Nosco Plastics
Erie, Penna.

Allied Chemical Co.
Buffalo Dye Div.
Buffalo, New York

National Aeronautics & Space Administration
Lewis Research Center
Cleveland, Ohio

11-30-70